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6. AUTHOR(S)

Richard H. Guy, Ph.D.

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13. ABSTRACT (Maximum 200 words)

The conference fully satisfied its principle objective: to provide a unique, multi-disciplinary forum for researchers active in studies directed at the fundamental understanding of skin barrier function. Attendees were drawn from chemistry, biology, toxicology, biophysics, and most permutations and combinations thereof. Drug delivery, risk assessment and regulatory considerations (FDA, EPA) were strongly represented amongst the participants. The meeting was extremely well-received by the attendees, and a second Gordon Conference will be held in August, 1991.

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Gordon Conference on "Barrier Function of Mammalian Skin"

Principal Investigator: Richard H. Guy, Ph.D.

University of California, San Francisco

926 Medical Sciences

San Francisco, CA 94143-0446

The inaugural Gordon Research Conference on "Barrier Function of Mammalian Skin" was held on August 12-16, 1989 at the Brewster Academy, NH. Details of the formal sessions and of the posters presented at the meeting are outlined on the attached pages.

The conference was completely subscribed with the maximum of 135 participants approximately equally divided among academic, industrial and government laboratories. The attendees came primarily from North America; however, 26 foreign scientists attended from Europe, Japan, Africa and the Middle East.

In addition to the grant from the Air Force Office of Scientific Research, funding was also received from the National Institute of Child Health and Human Development, the National Institute of Arthritis and Musculoskeletal and Skin Diseases, the Office of Naval Research, The Gordon Research Conferences, and several pharmaceutical companies. These funds were used entirely to support the travel and registration (which includes room and board) for the Chairman, Vice-Chairman, speakers and discussion leaders. In addition, almost \$10,000 was given to 30 junior scientists (new faculty members, graduate students and post-doctoral fellows) to partially underwrite their expenses.

The conference fully satisfied its principal objective: to provide a unique, multi-disciplinary forum for researchers active in studies directed at the fundamental understanding of skin barrier function. Attendees were drawn from chemistry, biology, toxicology, biophysics, and most permutations and combinations thereof. Drug delivery, risk assessment and regulatory considerations (FDA, EPA) were each strongly represented amongst the participants. The meeting was extremely well-received by the attendees, and a second Gordon Conference will be held in August, 1991.

GORDON RESEARCH CONFERENCE
BARRIER FUNCTION OF MAMMALIAN SKIN
AUGUST 14-18, 1989
BREWSTER ACADEMY
WOLFEBORO, NH

Chairman: Richard Guy, UCSF
Vice-Chairman: Russ Potts, Pfizer

MONDAY 9AM

Air-liquid keratinocyte cultures

Discussion leader Isadore Bernstein, U. of Michigan

Speakers Maria Ponec, Leiden U.
Kathi Madison, U. of Iowa

MONDAY 7:30PM

Stratum corneum lipids and epidermal biochemistry

Discussion leader Bill Curatolo, Pfizer

Speakers Don Downing, U. of Iowa
Peter Elias, UCSF

TUESDAY 9AM

Blophysical characterization of barrier function I

Discussion leader Steve Jacques, M.D. Anderson Cancer Center

Speakers Kris Knutson, U. of Utah
Bill Plachy, SF State
Steve White, UC Irvine

TUESDAY 7:30PM

Blophysical characterization of barrier function II

Discussion leader Ron Warner, P&G

Speakers Irv Blank, Harvard
Harry Bodde', Leiden U.
Mike Francoeur, Pfizer

WEDNESDAY 9AM

Perturbation of barrier function I-chemical enhancers

Discussion leader Gene Cooper, Alcon

Speakers Brian Barry, U. of Bradford
Richard Guy, UCSF

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Bill Higuchi, U. of Utah

WEDNESDAY 7:30PM

Perturbation of barrier function II-iontophoresis

Discussion leader Gerry Kastling, P&G

Speakers Ron Burnette, U. of Wisconsin
Chris Cullander, UCSF

THURSDAY 9AM

Physical chemistry of barrier function-transport relationships

Discussion leader Hans Schaefer, C.I.R.D.

Speakers Brad Anderson, U. of Utah
Jon Hadgraft, U. of Wales

THURSDAY 7:30PM

Models for characterizing barrier function

Discussion leader Carl Peck, FDA

Speakers Bob Bronaugh, FDA
Gerry Kreuger, U. of Utah

FRIDAY 9AM

Skin metabolism and transport

Discussion leader Braham Shroot, C.I.R.D.

Speakers Gordon Flynn, Cygnus
John Kao, SKF
Hasan Muktar, Case Western Reserve U.

GORDON CONFERENCE POSTER SESSIONS

Monday-Tuesday

1. INFLUENCE OF THE DELIVERY VEHICLE FORMULATION ON THE IN VITRO AND IN VIVO HUMAN STRATUM CORNEUM PERMEATION OF BETAMETHASONE 17-VALERATE.

Smith, E.W., Meyer, E., Halgh, J.M.

Grahamstown, SOUTH AFRICA

2. INFLUENCE OF CORNEOCYTE SIZE ON BARRIER FUNCTION OF HUMAN SKIN.

Rougler, A., Corcuff, P., Lotte, C.

Aulnay sous Bois, FRANCE

3. TRANSEPIDERMAL WATER LOSS-PERCUTANEOUS ABSORPTION RELATIONSHIP.

Rougler, A., Lotte, C.

Aulnay sous Bois, FRANCE

4. IN VITRO PERCUTANEOUS ABSORPTION AND STRATUM CORNEUM BINDING OF ALACHLOR: EFFECT OF FORMULATION DILUTION WITH WATER.

Bucks, D.A.W., Wester, R.C., Mobayen, M.M., Malbach, H.I., Coleman, D.L.

San Francisco, CA & Breckenridge, CO

5. HMG CoA REDUCTASE ACTIVITY AND ACTIVATION STATE ARE REGULATED BY BARRIER REQUIREMENTS.

Proksch, E., Felngold, K.R., Elias, P.M.

San Francisco, CA

6. COMPLETE METABOLIC CONVERSION OF CYCLOL DURING SKIN PASSAGE IN HUMANS.

De Zeeuw, R.A., Herder, R.E., Wiechers, J.W.

Groningen, THE NETHERLANDS

7. BARRIER FUNCTION OF ORAL MUCOSA.

Squler, C.A., Cox, P.A., Wertz, P.W., Downing, D.T.

Iowa City, IA

8. METABOLISM OF TOPICALLY APPLIED FATTY ACID METHYL ESTERS IN BALB/C MOUSE EPIDERMIS.

Wertz, P.W., Downing, D.T.

Iowa City, IA

9. EFFECTS OF CULTURE CONDITIONS ON WATER PERMEABILITY OF EPIDERMIS RECONSTRUCTED IN VITRO.

Regnier, M., Schaefer, H., Darmon, M.

Sophia Antipolis, FRANCE

10. BARRIER FUNCTION OF HUMAN KERATINOCYTES CULTURED AT THE AIR-LIQUID INTERFACE.

Mak, V.H.W., Cumpstone, M.B., Kennedy, A.H., Guy, R.H., Potts, R.C.

Groton, CT and San Francisco, CA

11. THE PERCUTANEOUS ABSORPTION AND METABOLISM OF AZO COLORS.

Collier, S.W., Strom, J.E., Bronaugh, R.L.

12. IN VITRO PERCUTANEOUS ABSORPTION AND METABOLISM OF BENZOIC ACID, P-AMINOBENZOIC ACID (PABA) AND BENZOCAINE IN THE HAIRLESS GUINEA PIG.

Nathan, D., Sakr, A., Lichtin, J.L., Bronaugh, R.L.
Washington, DC and Cincinnati, OH

13. ROLE OF ABSORPTION RATE AND CUTANEOUS ENZYME ACTIVITY IN METABOLISM OF PERCUTANEOUSLY PENETRATING COMPOUNDS.

Collier, S.W., Stewart, R.F., Bronaugh, R.L.
Washington, DC

14. SKIN PHARMACOKINETICS OF ANTIINFLAMMATORY DRUGS IN CONTACT DERMATITIS: IN VIVO AND IN VITRO PENETRATION STUDIES.

Wilhelm, K-P., Surber, C., Malbach, H.I.
San Francisco, CA

15. EFFECTS OF EXPOSURE TO UV-C LIGHT ON HUMAN KERATINOCYTES IN A SKIN EQUIVALENT MAINTAINED AT AN AIR-LIQUID INTERFACE.

Harriger, M.D., Hull, B.E.
Dayton, OH

16. ON THE ORIGIN OF PARAFFIN HYDROCARBONS FOUND IN SKIN SURFACE LIPIDS.

Bortz, J.T., Wertz, P.W., Downing, D. T.
Iowa City, IA

17. DATA GENERATED BY THE OFFICE OF PESTICIDE PROGRAMS: EPA GUIDELINES TO MEASURING DERMAL ABSORPTION.

Zendzian, R.P.
Washington, DC

GORDON CONFERENCE POSTER SESSIONS

Wednesday-Thursday

1. SMALL-ANGLE X-RAY DIFFRACTION STUDIES OF MODEL SKIN LIPID MIXTURES: CORRELATION OF LAMELLAR LIQUID CRYSTALLINE STRUCTURE WITH THERMAL TRANSITIONS AND PHASE BEHAVIOR.

Miller, B.A.

Midland, MI

2. DC CURRENT-VOLTAGE CHARACTERISTIC OF EXCISED HUMAN SKIN.

Kasting, G.B., Bowman, L.A.

Cincinnati, OH

3. APPLICATIONS OF ELECTRON SPIN RESONANCE FOR THE LOCALIZATION OF LIPID PHASE MICROENVIRONMENTS IN MURINE STRATUM CORNEUM.

Rehfeld, S.J., Plachy, W.Z., Hou, E.S.Y., Elias, P.M.

San Francisco, CA

4. APPLICATIONS OF ELECTRON SPIN RESONANCE TO THE STUDY OF LIPID MICROENVIRONMENTS IN ICTHYOTIC STRATUM CORNEUM.

Rehfeld, S.J., Plachy, W.Z., Hou, E.S.Y., Williams, M.L., Elias, P.M.

San Francisco, CA

5. MOLECULAR MODELS OF THE CORNEOCYTE LIPID ENVELOPE AND INTERCELLULAR LAMELLAE.

Swartzendruber, D.C., Wertze, P.W., Greuskin, J.M., Downing, D.T.

Iowa City, IA

6. PERMEABILITY STUDIES ON MODEL MEMBRANES PREPARED FROM STRATUM CORNEUM LIPIDS.

Abraham, W., Downing, D.T.

Iowa City, IA

7. LOCATION OF DIFFUSIBLE ELEMENTS AND WATER IN SKIN.

Warner, R., Myers, M., Taylor, D.

Cincinnati, OH

8. SERVO MED EVAPORIMETER: PRECAUTIONS WITH EVALUATING THE EFFECT OF SKIN CARE PRODUCTS ON BARRIER FUNCTION

Morrison, B.M.

Gaithersburg, MD

9. TRANSCUTANEOUS CHEMICAL COLLECTION.

Conner, D.P., Peck, C.C., Almirez, R.G., Zamani, K., Fleischer, N., Bradley, C.R., Rhyne, P., Millora, E., Nix, D., Murphy, M.G.

Bethesda, MD

10. TRANSMISSION ELECTRON MICROSCOPY (TEM) VISUALIZATION OF STRATUM CORNEUM INTERCELLULAR LIPIDS LAMELLAE AFTER RUTHENIUM TETROXIDE FIXATION.

Swartzendruber, D.C., Madison, K.C., Wertz, P.W., Downing, D.T.

11. THE USE OF ELECTRON SPIN RESONANCE IN THE STUDY OF SKIN PENETRATION ENHANCERS.

Gay, C.L., Hadgraft, J., Kellaway, I.W., Evans, J.C., Rowlands, C.C.
Cardiff, Wales

12. PREDICTING PERCUTANEOUS PERMEABILITY OF VARIOUS COMPOUNDS USING SHED SNAKE SKIN AS A MODEL PERMEANT.

Itoh, T., Rytting, J.H.
Lawrence, KS

13. TRANSEPIDERMAL WATER LOSS AND HISTOPATHOLOGICAL RESPONSE OF RAT SKIN FOLLOWING ACUTE OR PROTRACTED EXPOSURE TO OLEYL ALCOHOL.

Holland, J.M., Curry, J.T., Slagell, K.S.
Kalamazoo, MI

14. PARTITIONING OF CHEMICALS INTO HUMAN STRATUM CORNEUM: IMPLICATIONS FOR RISK ASSESSMENT FOLLOWING DERMAL EXPOSURE.

Surber, C., Wilhelm, K-P., Malbach, H.I., Guy, R.H.
San Francisco, CA

15. OPTIMIZATION OF TOPICAL THERAPY: PARTITIONING OF DRUGS INTO STRATUM CORNEUM.

Surber, C., Wilhelm, K-P., Malbach, H.I., Guy, R.H.
San Francisco, CA

16. ^2H -NMR STUDIES OF MODEL MEMBRANES CONTAINING SPHINGOLIPID.

Kitson, N., Lafleur, M., Cullis, P.
Vancouver, BC

17. IONTOPHORETIC DELIVERY OF AMINO ACIDS AND PEPTIDES ACROSS THE SKIN.

Green, P.R., Hinz, R.S., Guy, R.H.
San Francisco, CA

18. COMPARISON OF IN VIVO AND IN VITRO PERCUTANEOUS ABSORPTION IN HUMAN SKIN.

Hartman, J.H., Gardiner, P.H., Cagen, S.Z., Van Gelder, G.A.
Houston, TX